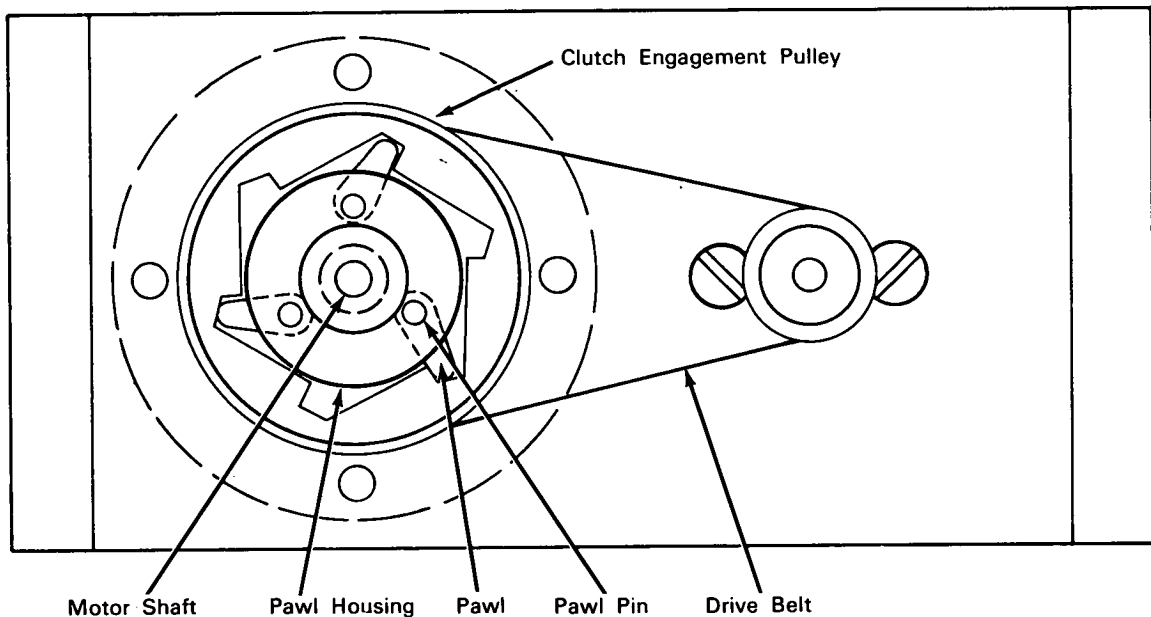


# NASA TECH BRIEF



This NASA Tech Brief is issued by the Technology Utilization Division to acquaint industry with the technical content of an innovation derived from the space program.

## Quick-Acting Clutch Disengages Idle Drive Motor



**The problem:** Low-power systems using more than one drive motor require some means of decoupling idle motors to conserve power. For example, certain tape transport systems use multiple drive motors to obtain varied tape speeds. Conventional spring clutches have a tendency to drag when contaminated. The centrifugal clutch has been found unreliable for this application.

**The solution:** A positive-drive, no drag, overrunning clutch.

**How it's done:** This clutch operates in two modes, a driving mode and an overrunning mode. The pawl housing is attached to the motor shaft while the clutch engagement pulley turns freely on a bearing. In the driving mode, as the motor starts, the pawls pivot on

the pawl pins and engage the clutch engagement pulley which is connected by a belt to the driven system. In the overrunning mode the driven system is operated by a second motor at a different speed, with the first motor in a power-off condition. In this mode, the clutch engagement pulley is turned by the driven system, the pawls disengage from the clutch engagement pulley, and the free clutch is said to be overrunning the pawl housing and idle motor. There is no slippage in the driving mode and no drag in the overrunning mode.

### Notes:

1. This device would be useful in any system where a number of shaft speeds are required with frequent shifting.

(continued overleaf)

2. For further information about this invention inquiries may be directed to:

Technology Utilization Officer  
Goddard Space Flight Center  
Greenbelt, Maryland, 20771  
Reference: B64-10028

**Patent status:** NASA encourages the immediate commercial use of this invention. It is owned by NASA and inquiries about obtaining royalty-free rights for its commercial use may be made to NASA Headquarters, Washington, D.C., 20546.

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(GSFC-143)